AIRTOUCH™
Communications

EX PARTE OR LATE FILED

Kathleen Q. Abernathy
Vice President
Federal Regulatory

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July 24, 1995

EX PARTE

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

RE: PR Docket 93-61, Automatic Vehicle Monitoring Systems

Dear Mr. Caton:

The attached information was provided to Jay Jackson of the FCC's Wireless Bureau on July 24, 1995. Please associate this material with the above-referenced proceeding.

Two copies of this notice were submitted to the Secretary of the FCC in accordance with Section 1.1206(a)(1) of the Commission's Rules.

Please stamp and return the provided copy to confirm your receipt. Please contact me at 202-293-4960 should you have any questions or require additional information concerning this matter.

Sincerely,

Kathleen Q. Abernathy

Attachments

No. of Copies rec'd 0+2
List A B C D E

AIRTOUCH
Teletrac

AirTouch Teletrac
7391 Lincoln Way
Garden Grove, CA 92641-1428

Telephone (714) 897-08[illegible]
Fax: (714) 892-863[illegible]

July 21, 1995

Mr. J. Jackson
Federal Communications Commission
Wireless Bureau
2025 "M" Street
Washington DC 20036

RE: AirTouch Teletrac Petition for Partial Reconsideration; Docket 93-61

Dear Mr. Jackson:

Enclosed please find information regarding the proposed bandwidth limitation rules. I have included several charts showing the emission mask produced by the proposed rules. In each chart for the wideband segments there is also a mask showing a conservative interpretation of the interim rules (-43 dBc).

One chart, labeled "LMS Emission Mask with ATT Emissions Overlaid" shows spectrum for mobile transmissions on two of Teletrac's channels. It also shows the rule proposed by Hughes.

We appreciate your work in this proceeding. I hope this information will be useful. If you have questions, please call me at 714-890-7687.

Sincerely,

William K. Goshay
Vice President of Engineering
and Development

enc.

TELETRAC NOTES REGARDING LMS OUT-OF-BAND EMISSIONS -- LMS PROPOSAL -- Page 1

Effective LMS systems depend on highly accurate time of arrival measurements to develop accuracy suitable for the services provided[1].

- For example, in Teletrac's system, receivers designed to deliver time-of-arrival accuracy to within 30 nanoseconds (under non-multipath conditions).
- These time measurements are developed by processing the signals produced by the direct-sequence chipping clock.

There is significant difference between TOA and system location accuracy. This is primarily caused by Geometric Dilution of Precision (GDOP).

- The Teletrac system accuracy is 100-150 feet. If accuracy were soley dependent on TOA, accuracy of 30 feet would be possible.
- A brief description of GDOP can be found in Teletrac's petition for rulemaking filed on May 26, 1992[2].
- LMS providers cannot produce enough TOA or system accuracy if the chipping rates are reduced.

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[1] Teletrac Petition for Rulemaking, Appendix Impact of Co-Channel Interference on 900 MHz Wideband Pulse-Ranging AVM System Performance at 2.
[2] Id. page 12.

It is impractical for LMS providers to meet public demand for location accuracy under the new bandwidth limitation.

- Chipping rate would need to be reduced significantly which would bring accuracy to unacceptable low levels.
- Teletrac's existing customers would be left with inferior service.
- The rule in the Report and Order seems more appropriate for 5 kHz channel spacing[3].
- The video bandwidth specification effectively increases the amount of attenuation by up to 10 dB because noise in the measuring device adds raises the peak of the envelope.[4]

The proposed rules allow greater protection than the interim rules, while still allowing high enough chipping rates to develop suitable time-of-arrival[5].

- The attached charts show LMS proposed out-of-band emission limitations as they would be applied across the band.
- Also included is a chart showing how two of Teletrac's channels would fit inside the emission mask[6].
- The proposed narrowband forward link rule is based on PCS and MAS rules[7].

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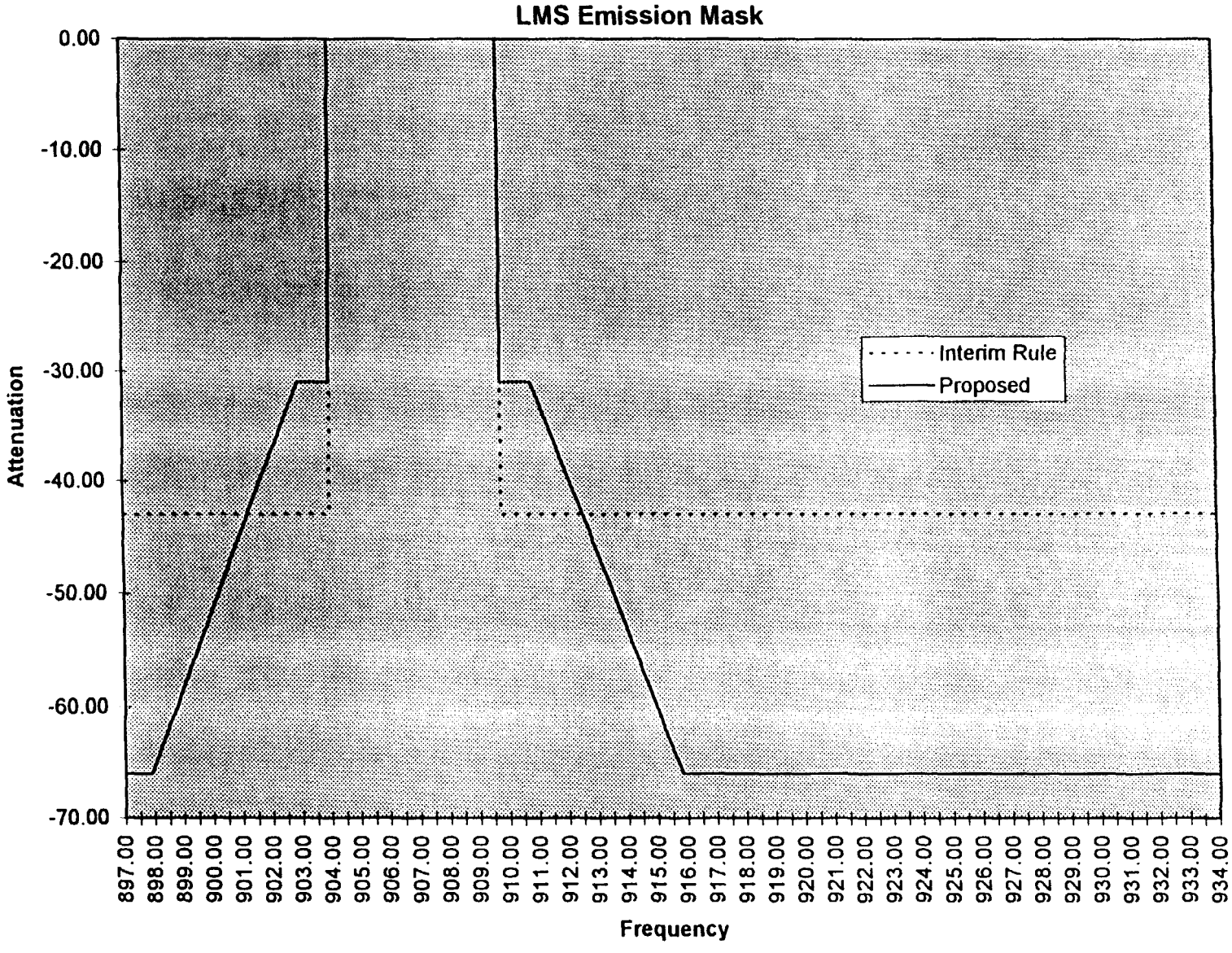
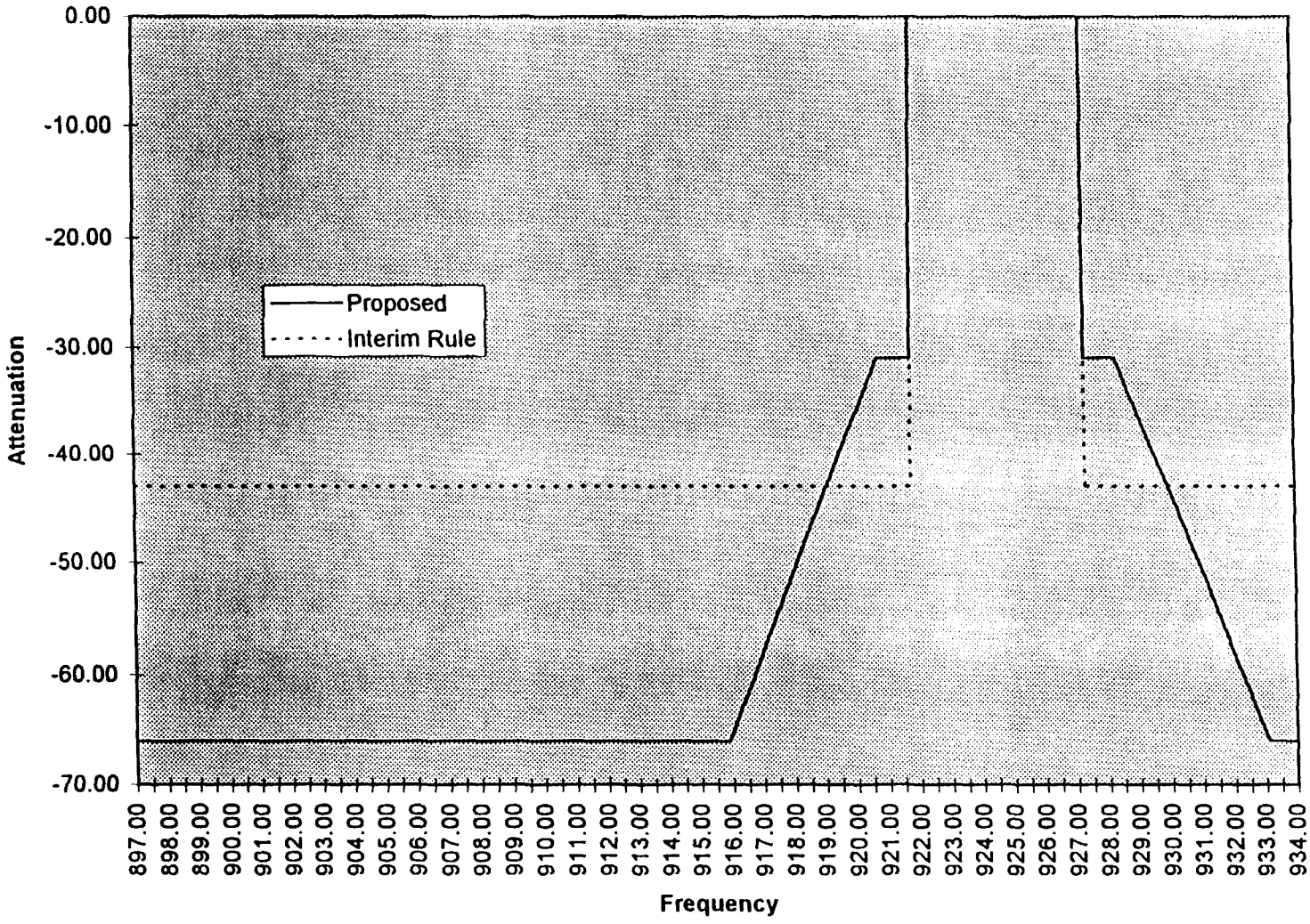
[3] See C.F.R. Section 90.209 (1). Also note the resolution bandwidth is 100 Hz or 10 kHz, not 100 kHz.
[4] Since video bandwidth filtering is post-detection, it is perfectly acceptable to apply more filtering to reduce displayed noise which corrupts the measurement.
[5] Teletrac Petition for Partial Reconsideration and Clarification, pages 5-8.
[6] Under 90.209 (m), Teletrac's first side lobe attenuation would need to be approximately 62 dB.
[7] C.F.R. section 24.133 (a) (1), 94.71 (c)(4)

Multilateration Band
(904.000-909.750 MHz)

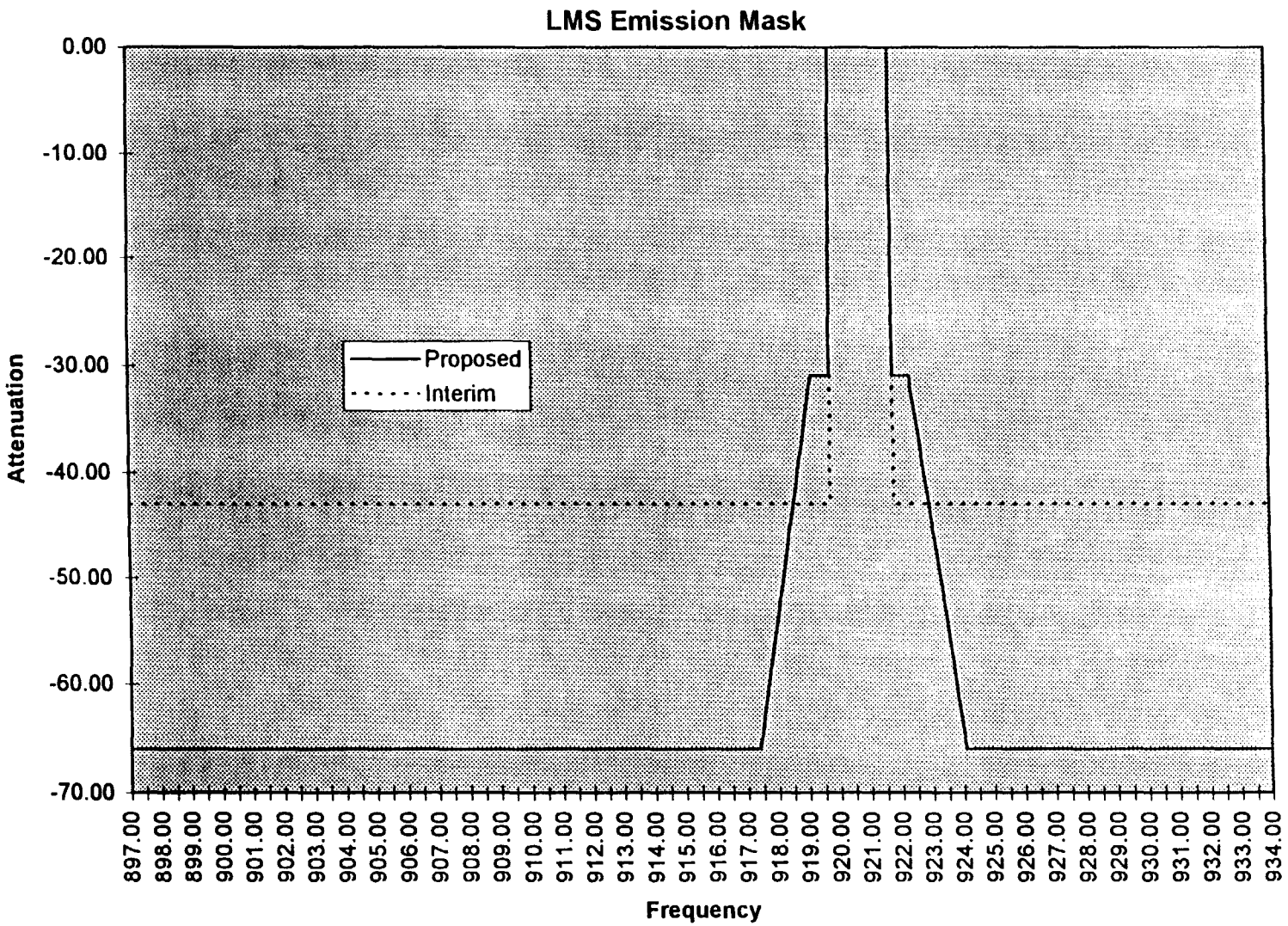


Multilateration Band
(921.750-927.25 MHz)

LMS Emission Mask

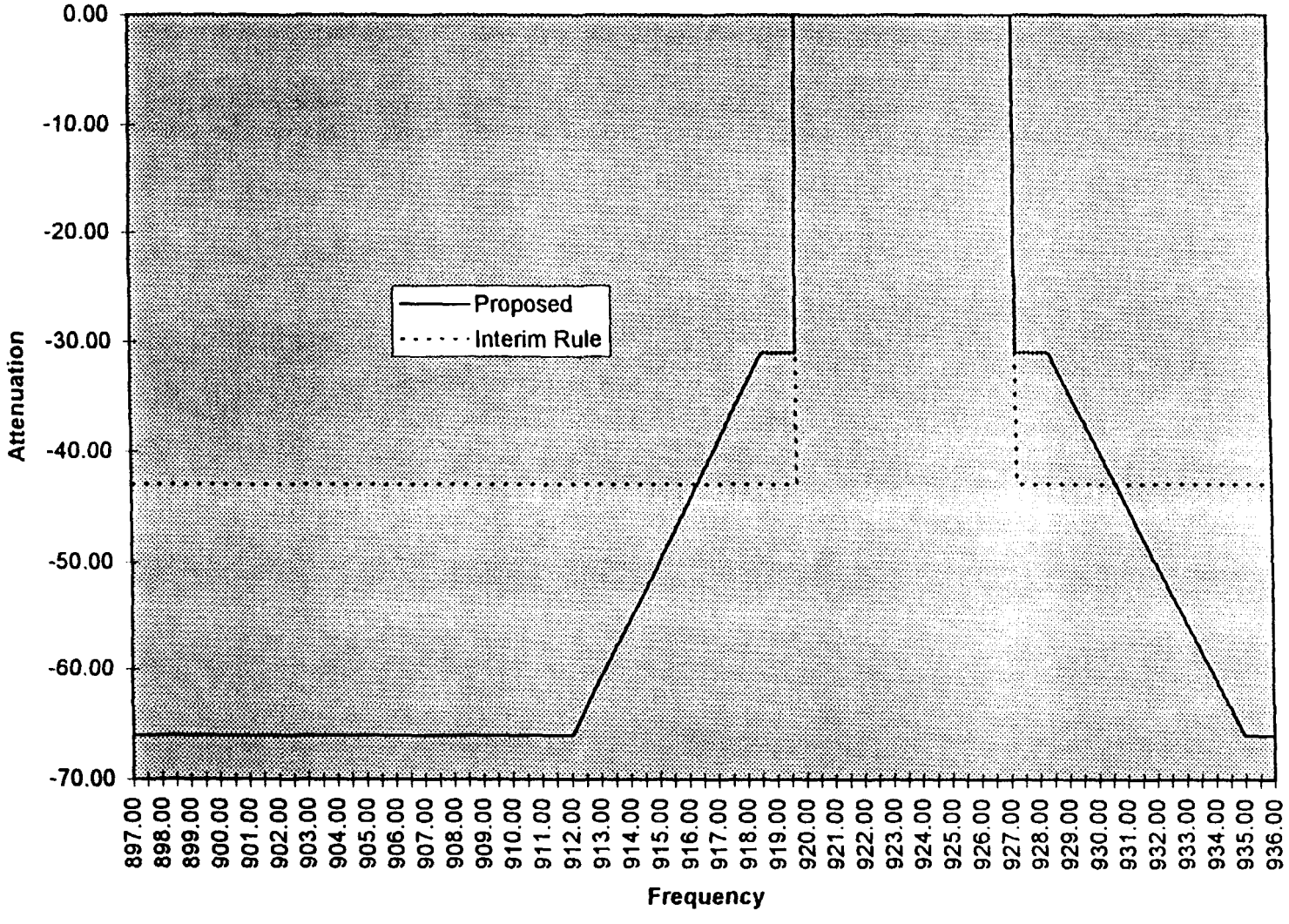


Multilateration Non-Multilateration Band
(919.750-921.750 MHz)



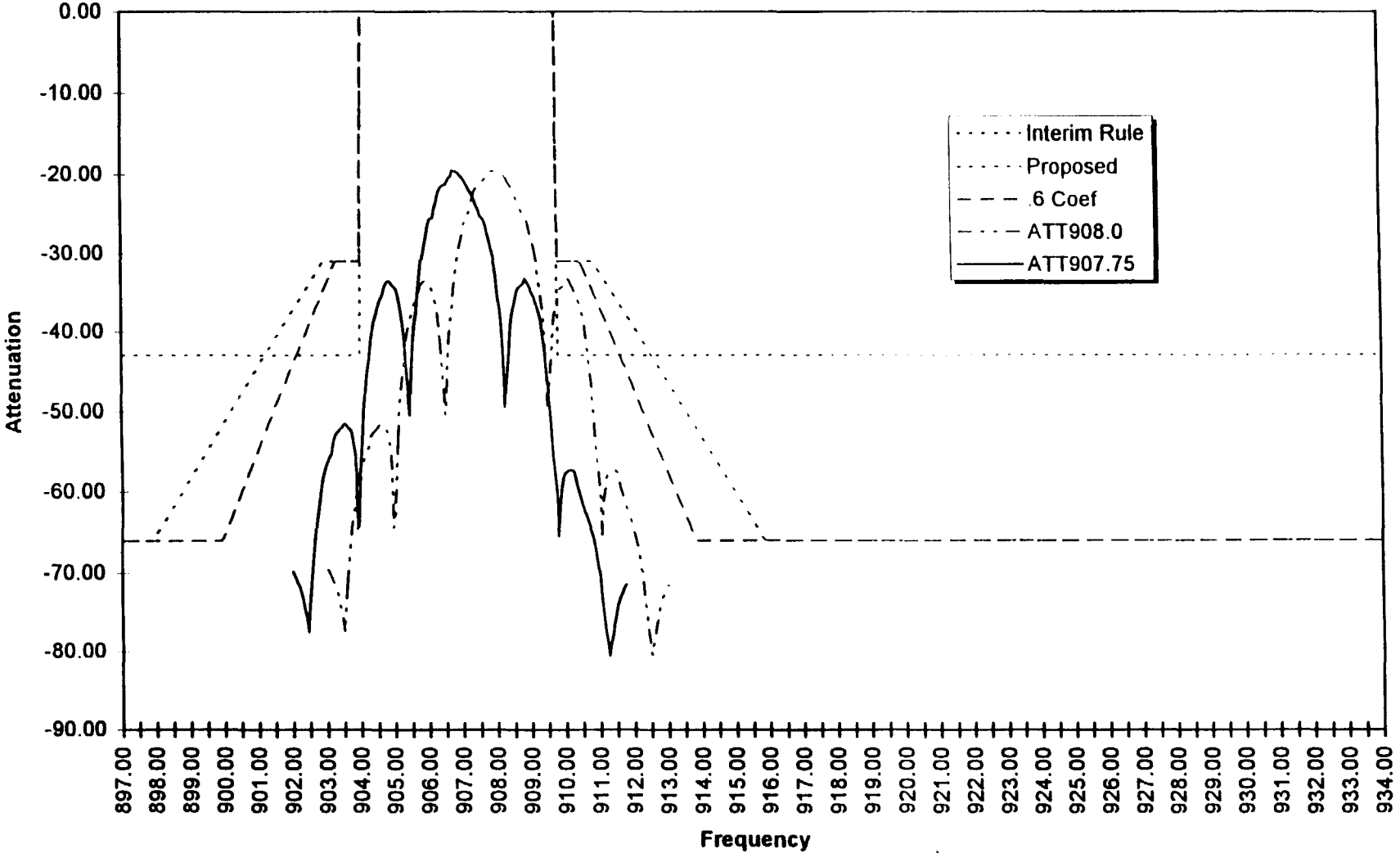
8 MHz Multilateration Band
(919.75-927.75 MHz)

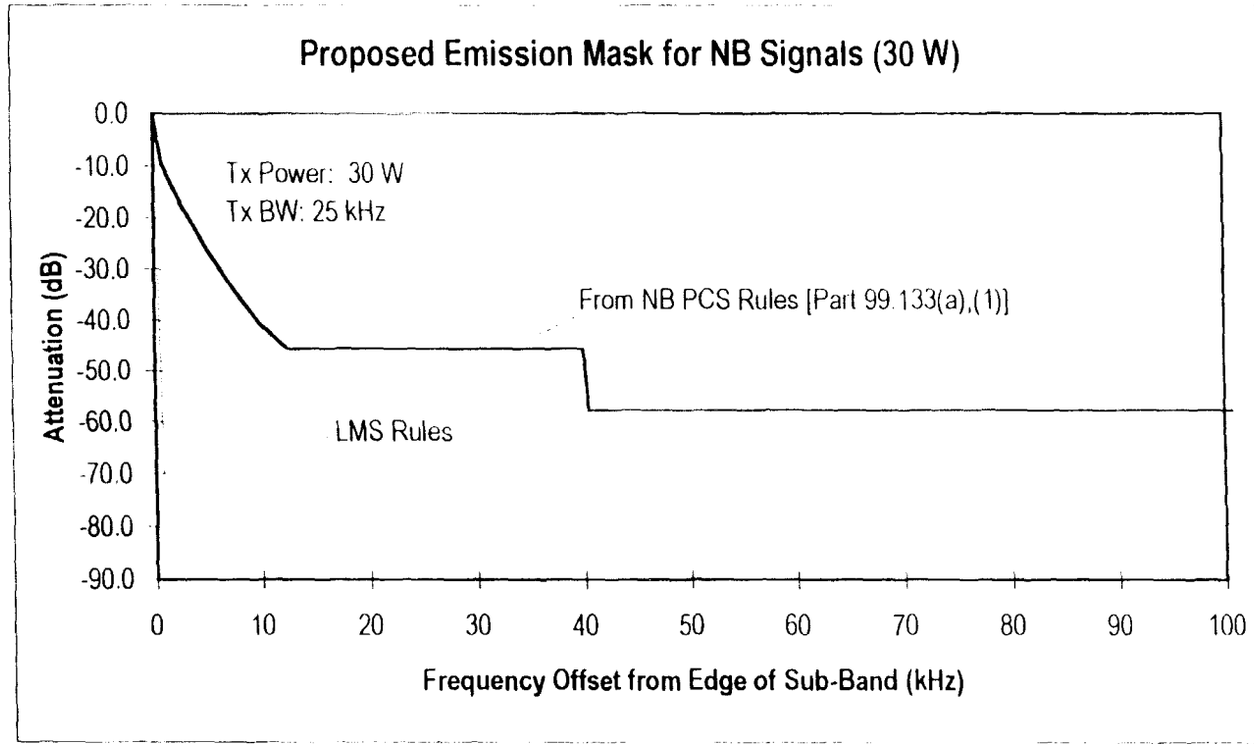
8 MHz Upper Band LMS Emission Mask

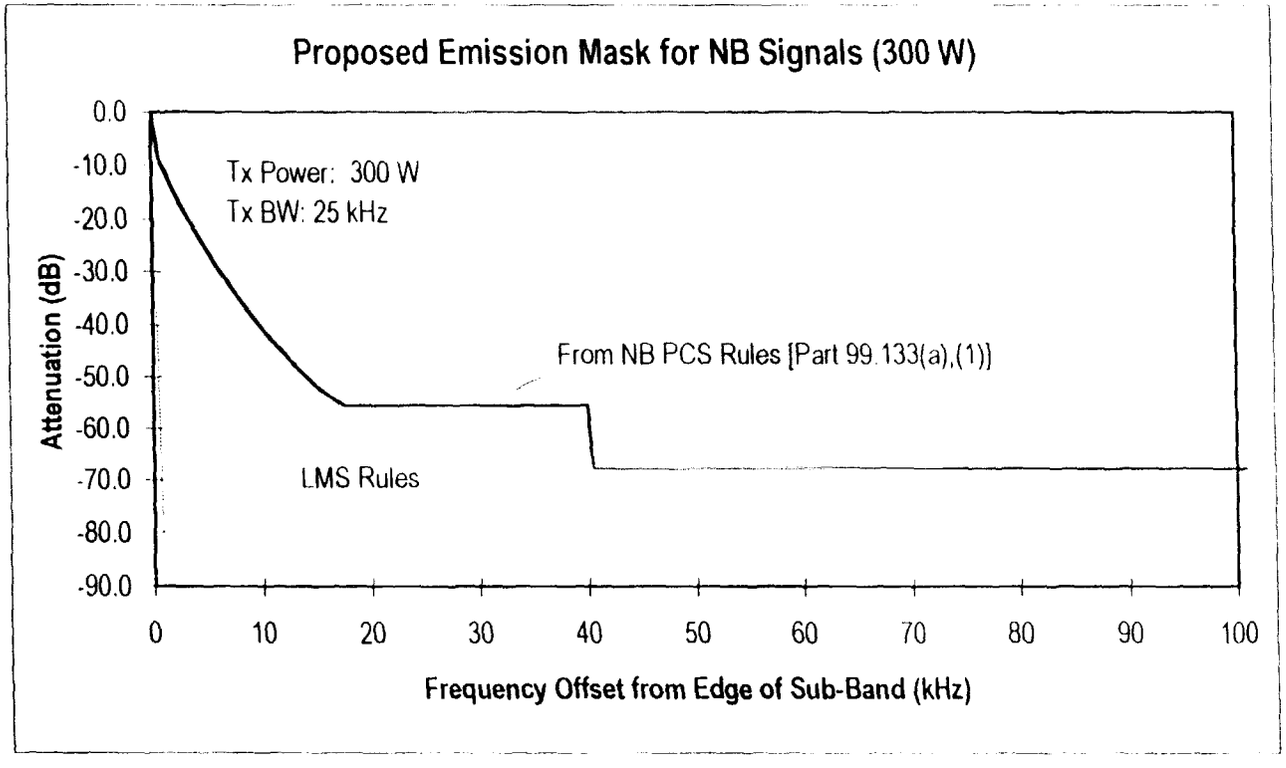


Multilateration Band
(904.000-909.750 MHz)

LMS Emission Mask
with ATT Mobile Emissions Overlaid




Proposed Emission Mask for NB Signals (30 W)
Attenuation (dB)
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
Tx Power: 30 W
Tx BW: 25 kHz
From NB PCS Rules [Part 99.133(a),(1)]
LMS Rules
0
10
20
30
40
50
60
70
80
90
100
Frequency Offset from Edge of Sub-Band (kHz)


Proposed Emission Mask for NB Signals (300 W)
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
Attenuation (dB)
Tx Power: 300 W
Tx BW: 25 kHz
From NB PCS Rules [Part 99.133(a),(1)]
LMS Rules
0
10
20
30
40
50
60
70
80
90
100
Frequency Offset from Edge of Sub-Band (kHz)